C.T. MALE ASSOCIATES, P.C.

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November 16, 2006

Mr. Lawrence J. Alden, P.E., Project Manager
NYSDEC Central Office
625 Broadway, 12th Floor
Albany, New York 12233-7013

Re: Revised Soil Vapor Intrusion Monitoring Work Plan
714 Broadway Site, City of Schenectady, NY
ERP No.: E447034; SAC No.: C302650
NYSDEC Spill No.: 04-00440
C.T. Male Project No.: 05.5086

Dear Mr. Alden:

On behalf of the City of Schenectady and in reference to your November 15, 2006 e-mail, presented for NYSDEC's approval is this revised Soil Vapor Intrusion Monitoring Work Plan (Work Plan) in connection with the 714 Broadway site located in the City of Schenectady, New York. This Work Plan summarizes where residual petroleum contamination remains on the site, and presents the locations where soil vapor monitoring is proposed to be conducted and the procedures that will be followed during the sampling.

AREAS OF RESIDUAL PETROLEUM CONTAMINATION

As discussed in the Tank Closure and Remedial Action Report, 714 Broadway Site dated May 8, 2006, some residual petroleum contaminated soil remains along a small area of the east side wall of the excavation, just opposite the end of former Tank 5, and along the southwest side walls of the excavation (Figure 1). Further excavation to the east was not possible due to the presence of a natural gas line along the eastern property boundary. Further excavation to the south and west was not possible due to the presence of underground electric, the side walk (offsite) and the close proximity of Weaver Street (offsite).

SOIL VAPOR MONITORING LOCATIONS AND SAMPLING PROCEDURES

Based on the conditions present on site as discussed above, three soil vapor samples are proposed to be collected as part of the vapor intrusion monitoring. Two soil vapor samples will be collected as sub-slab samples below the concrete floor slab in the southern portion of the onsite building; one sample in the eastern garage bay area (room with trench / work pit) and the other in the office area. Soil vapor samples are not

proposed in the northern garage bay portion of the building, since part of the floor is that area is dirt. One soil vapor sample will be collected as a sub-slab sample beneath the sidewalk (offsite) along the western edge of the site where residual petroleum contaminated soil remains. The locations of the proposed soil vapor sampling points are shown in Figure 1, Proposed Soil Vapor Sampling Locations Map.

Installation of the sample collection device in the concrete floor slab area and sidewalk area will consist of drilling a small hole (approximately 0.5 inch diameter) in the concrete and inserting polyethylene tubing to less than two inches below the slab. Course silica quartz sand or equal material will be added to cover the tubing to about 1-inch below the concrete surface. The tubing will be sealed in place with a non-VOC emitting product, such as melted beeswax or putty. Polyethylene sheeting will be sealed around each sub-slab hole, and the area immediately surrounding the hole will be enclosed and sealed. The tubing extending from the ground will run through the enclosure and out the top of it.

Sample collection will consist of purging three volumes of the amount of vapor in the tubing using a personal sampling pump at a rate of approximately 0.2 liters per minute, and releasing it into the atmosphere. An inert tracer gas, such as helium, will be added to the enclosure (prior to purging the sample probe point) to confirm the integrity of the seal around the tubing in the ground. A portable monitoring device will be connected to the tubing in order to analyze a sample of the soil vapor for the tracer gas prior to and after sampling for the VOCs. This is done to confirm that a representative sample of the soil vapor is collected and outside gasses have not entered in to the medium. Once the monitoring device indicates that the tracer gas is not detected in the air coming from the tubing, a 6 L Summa canister will be attached to the tubing and the sample will be collected at a regulated flow rate of 0.05 L/min. In accordance with the NYSDOH October 2006 Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, a probe is considered adequately sealed unless high concentrations (typically greater than 10%) of the tracer gas are measured within the enclosure. The amount of time it will take to collect the soil vapor sample is approximately 2 hours per sample, based on the size of the Summa canister and the regulator flow rate. The sample collection will be terminated and the valve closed after 2 hours of sampling. The portable monitoring device will then be reconnected to the tubing to confirm that tracer gas is not detected and a representative sample of the soil vapor has been collected. Once a sample has been collected at each of the locations, the tubing will be removed and the holes will be repaired with cement.

The Summa canisters are supplied by and will be certified clean by the analytical laboratory. The soil vapor samples will be shipped overnight to Chemtech of

Mountainside, New Jersey under ambient conditions, and analyzed by EPA Method TO-15 for the target list of volatile organic compounds (VOCs). Chemtech is a NYSDOH ELAP (Environmental Laboratory Approval Program) certified laboratory (ELAP No. 11376). The list of TO-15 VOCs and their associated practical quantitation limits obtained from Chemtech is presented in Attachment A. A chain of custody record will be completed to track the samples from the time of collection until they are received at the laboratory. Custody seals will be placed on the canisters over where the regulators were removed and on the shipping container. An ASP Category B data deliverable package will be prepared by the laboratory for the laboratory analyses. The data deliverable package will be validated by C.T. Male Associates, P.C.'s in-house data validator.

The laboratory analyses results will be evaluated against the criteria presented in the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006. A letter report will be prepared on the monitoring conducted and the findings, and include a sampling location map and the laboratory data deliverable package.

The NYSDEC will be notified ahead of time of when the soil vapor monitoring will be conducted. If you have any questions, please call me at (518) 786-7492.

Respectfully submitted,
C.T. MALE ASSOCIATES, P.C.

Elizabeth W. Rovers

Elizabeth W. Rovers, P.E.
Managing Engineer

Enclosure

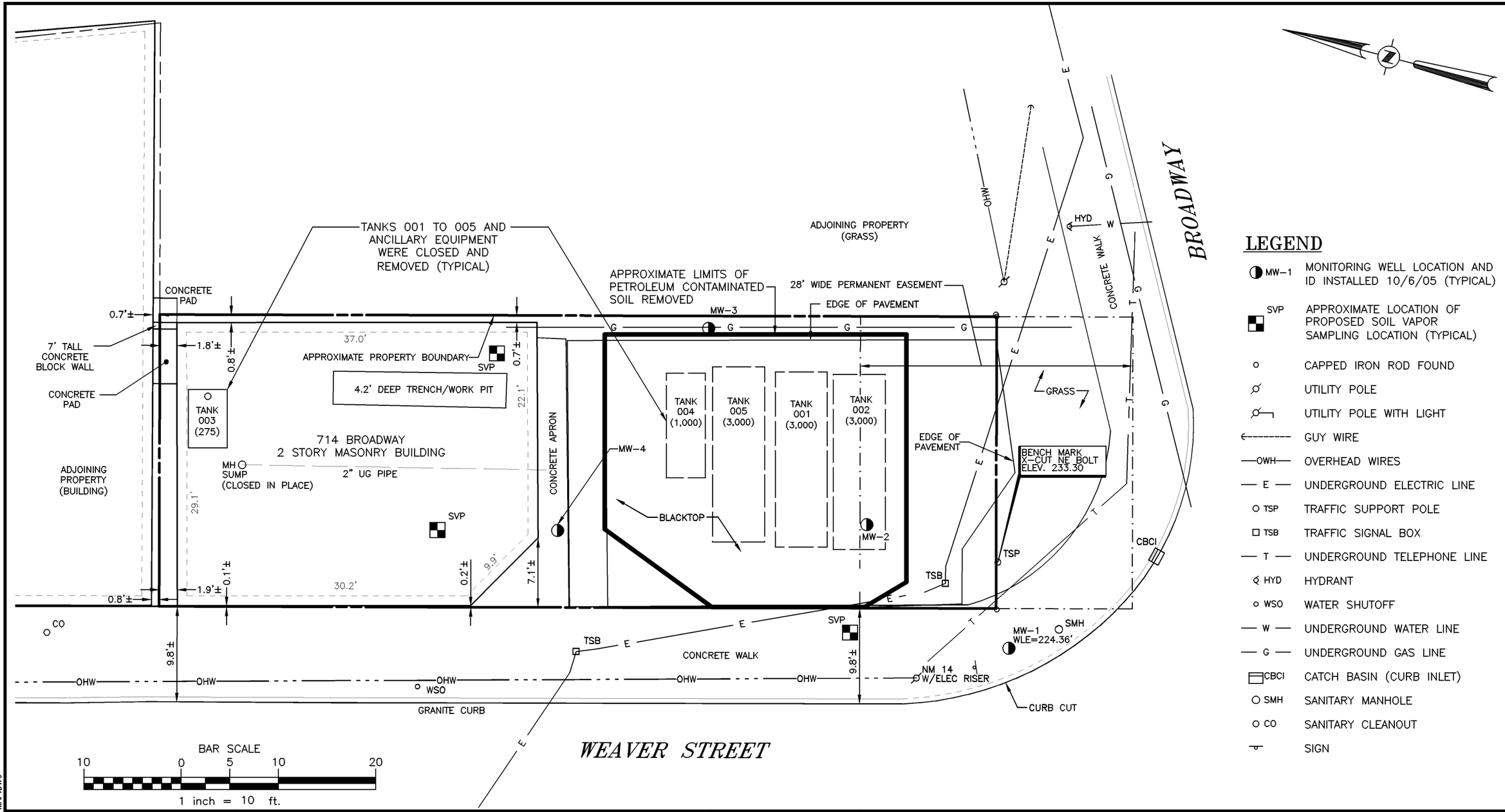
c: Mr. Bernard Sisson, P.E., City of Schenectady

FIGURE

FIGURE 1 – PROPOSED SOIL VAPOR SAMPLING LOCATIONS MAP

NONE

PROJECT NUMBER: 05.5086



LEGEND

MW-1	MONITORING WELL LOCATION AND ID INSTALLED 10/6/05 (TYPICAL)
SVP	APPROXIMATE LOCATION OF PROPOSED SOIL VAPOR SAMPLING LOCATION (TYPICAL)
o	CAPPED IRON ROD FOUND
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	GUY WIRE
—OWH—	OVERHEAD WIRES
— E —	UNDERGROUND ELECTRIC LINE
O TSP	TRAFFIC SUPPORT POLE
□ TSB	TRAFFIC SIGNAL BOX
— T —	UNDERGROUND TELEPHONE LINE
HYD	HYDRANT
WSO	WATER SHUTOFF
— W —	UNDERGROUND WATER LINE
— G —	UNDERGROUND GAS LINE
CBCI	CATCH BASIN (CURB INLET)
O SMH	SANITARY MANHOLE
O CO	SANITARY CLEANOUT
	SIGN

NOTE:
1. THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPROXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2. HOWEVER, THE MH SUMP, TRENCH/WORK PIT, EDGE OF PAVEMENT AND MONITORING WELLS WERE SURVEYED BY C.T. MALE ASSOCIATES, P.C. ON OCTOBER 31, 2005.

MAP REFERENCE:
1. BOUNDARY SURVEY, 714 BROADWAY, PREPARED BY C.T. MALE ASSOCIATES, P.C., DATED APRIL 22, 2005, DWG. NO. 05-332.

DATE		REVISIONS RECORD/DESCRIPTION	DRAFTED	CHECK	APPR.
	1				
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DESIGNED :
DRAFTED : J. MARX
CHECKED : L. ROVERS
PROJ. NO: 05.5086
SCALE : 1"=10'
DATE : OCT. 18, 2006

PROPOSED SOIL VAPOR SAMPLING LOCATIONS MAP

TANK CLOSURES AND SOIL REMEDIATION 714 BROADWAY SITE

CITY OF SCHENECTADY — SCHENECTADY COUNTY, NY

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ARCHITECTURE & BUILDING SYSTEMS ENGINEERING * CIVIL ENGINEERING
ENVIRONMENTAL SERVICES * SURVEY & LAND INFORMATION SERVICES

FIGURE 1
SHEET 1 OF 1
DWG. NO: 06-0678

CAD DWG. FILE NAME: PROP SOIL VAP SAM LOC MAP.DWG

CAD DWG. FILE NAME: PROP SOIL VAP SAM

ATTACHMENT A

LIST OF TO-15 VOLATILE ORGANIC COMPOUNDS AND PRACTICAL QUANTITATION LIMITS

CHEMTECH

Compound	CAS	MW	MDL (pppv)	PQL (ppbv)	MDL (ug/m3)	PQL (ug/m3)
1,1,1-Trichloroethane	71-55-6	133.4	0.028	0.1	0.15	0.55
1,1,2,2-Tetrachloroethane	79-34-5	167.9	0.047	0.1	0.33	0.69
1,1,2-Trichloroethane	79-00-5	133.4	0.043	0.1	0.24	0.55
1,1-Dichloroethane	75-34-3	99	0.03	0.1	0.12	0.4
1,1-Dichloroethene	75-35-4	97	0.034	0.1	0.133	0.4
1,2,4-Trichlorobenzene	120-82-1	181.5	0.051	0.1	0.38	0.77
1,2-Dichloropropane	78-87-5	113	0.054	0.1	0.25	0.46
1,3-Dichloropropene	542-75-6	111	0.047	0.1	0.22	0.45
1,4-Dichlorobenzene (p-)	106-46-7	147	0.054	0.1	0.32	0.29
Benzene	71-43-2	78	0.031	0.1	0.1	0.32
Bromomethane	74-83-9	94.9	0.022	0.1	0.08	0.39
Carbon tetrachloride	56-23-5	153.8	0.061	0.1	0.39	0.63
Chlorobenzene	108-90-7	112.6	0.047	0.1	0.22	0.46
Chloroethane	75-00-3	64.5	0.024	0.1	0.06	0.26
Chloroform	67-66-3	119	0.022	0.1	0.11	0.49
Chloromethane	74-87-3	50.5	0.031	0.1	0.06	0.21
Ethylbenzene	100-41-4	106	0.034	0.1	0.33	0.43
Ethylene dibromide (1,2-dibromoeth	106-93-4	187.9	0.041	0.1	0.031	0.77
Hexachlorobutadiene	87-68-3	260.8	0.066	0.1	0.071	1.07
Methylene chloride	75-09-2	84.9	0.047	0.1	0.16	0.35
m-Xylene	108-38-3	106.2	0.084	0.2	0.036	0.87
o-Xylene	95-47-6	106.2	0.05	0.1	0.022	0.43
p-Xylene	106-42-3	106.2	0.084	0.2	0.036	0.87
Styrene	100-42-5	104	0.04	0.1	0.17	0.43
Tetrachloroethene	127-18-4	165.8	0.038	0.1	0.26	0.68
Toluene	108-88-3	92	0.054	0.1	0.2	0.38
Trichloroethene	79-01-6	131.4	0.043	0.1	0.23	0.54
Vinyl chloride	75-01-4	62.5	0.031	0.1	0.08	0.26
1,3-Butadiene	106-99-0	54	0.07	0.1	0.15	0.22
Hexane	110-54-3	86.2	0.024	0.1	0.08	0.29
Methyl ethyl ketone (2-butanone)	78-93-3	72	0.07	0.1	0.2	0.35
Vinyl acetate	108-05-4	86	0.025	0.1	0.09	0.35
1,2,4-Trimethylbenzene (Pseudocu	95-63-6	120.2	0.048	0.1	0.24	0.49
1,2-Dichlorobenzene	95-50-1	147.01	0.049	0.1	0.3	0.6
1,2-Dichloroethane	107-06-2	98.96	0.065	0.1	0.26	0.4
1,3,5-Trimethylbenzene (Mesitylene	108-67-8	120.2	0.054	0.1	0.26	0.49
1,3-Dichlorobenzene	541-73-1	147.01	0.065	0.1	0.39	0.6
cis-1,2-Dichloroethene	156-59-2	96.94	0.043	0.1	0.17	0.4
Freon 11 (Trichlorofluoromethane)	75-69-4	137.38	0.041	0.1	0.23	0.56
Freon 113 (1,1,2-Trichloro-1,2,2-trif	76-13-1	187.38	0.024	0.1	0.18	0.77
Freon 114 (1,2-Dichloro-1,1,2,2-tetr	76-14-2	170.93	0.028	0.1	0.02	0.7
Freon 12 (Dichlorodifluoromethane)	75-71-8	120.91	0.031	0.1	0.15	0.49
m-Xylene (1,3-Dimethylbenzene)	108-38-3	106.17	0.084	0.2	0.36	0.87

Source: EEEPC 2005

CHEMTECH

Compound	CAS	MW	MDL (pppv)	PQL (ppbv)	MDL (ug/m3)	PQL (ug/m3)
trans-1,3-Dichloropropene	542-75-6	110.97	0.047	0.1	0.22	0.45
1,4-Dioxane	123-91-1	88	0.054	0.1	0.19	0.36
2,2,4-Trimethyl pentane	540-84-l	114	0.026	0.1	0.12	0.47
2-Hexanone	591-78-6	100.16	0.04	0.1	0.16	0.36
Acetone	67-64-1	58.08	0.126	0.1	0.3	0.24
Bromodichloromethane	75-27-4	163.83	0.035	0.1	0.23	0.67
Bromoform	75-25-2	252.8	0.035	0.1	0.36	1.03
Carbon disulfide	75-15-0	76	0.022	0.1	0.07	0.31
Cyclohexane	110-82-7	84.16	0.07	0.1	0.23	0.34
Dibromochloromethane	124-48-1	208.28	0.041	0.1	0.34	0.85
Methyl isobutyl ketone (4-Methyl-2-	108-10-1	100.2	0.06	0.1	0.24	0.41
Methyl tert-butyl ether	1634-04-4	86	0.043	0.1	0.16	0.36
trans-1,2-Dichloroethene	156-60-5	96.94	0.038	1	0.15	0.4

Source: EEEPC 2005